

ENGINE EXHAUST EMISSIONS MEASUREMENT CORRECTION

ABSTRACT OF THE DISCLOSURE

An exhaust emission analysis system is provided that includes an exhaust and dilution gas source respectively providing exhaust and dilution gases. A dilution unit includes exhaust and dilution gas flow devices, such as mass flow controllers, fluidly connected to the exhaust and dilution gas sources, respectively. The metering device in the mass flow controllers defines a gas flow rate of gas from its respective gas source. The gas flow devices are fluidly connected at a connection that mixes the gases to provide a diluted exhaust gas having an incorrect dilution ratio. A water measurement device such as an analyzer measures the water content of the exhaust gas, preferably subsequent to dilution. A water content dilution signal corresponding to the water content in the exhaust gas is sent from the water measurement device to a control device. An adjustment factor is calculated by the controller and a flow rate command signal is sent from the controller corresponding to the adjustment factor, preferably, to the exhaust gas mass flow controller to adjust the gas flow rate of the exhaust gas and provide a corrected dilution ratio at the connection. Correction of the diluted exhaust gas ratio may also be provided to particulate samplers according to the above principles.